

B. Claims

Please amend claim 1 as follows. A complete listing of all the claims appears below; this listing replaces all earlier amendments and listings of the claims.

1. (Currently Amended) An ink jet head substrate having a plurality of heating elements and an input line for inputting a pulse width regulating signal regulating a width of a drive pulse to be applied to the heating elements on a base substrate,

wherein a logic circuit for supplying the drive pulse to be applied to the heating elements at staggered timing is provided on the input line for inputting the pulse width regulating signal, and

wherein the input line is provided with an electrostatic protective element comprising (a) a pull-down resistor or a pull-up resistor, either of which having a parasitic diode for electrostatic protection between ground lines; (b) a diode for electrostatic protection connected to a ground line; (c) at least two diodes for electrostatic protection connected to a logic circuit drive power supply; and (d) a polysilicon resistor.

2. (Previously Presented) The ink jet head substrate according to claim 1, further comprising:

a driver which drives the plurality of heating elements according to image data;

a block selection unit for dividing the plurality of heating elements into blocks for a predetermined number of heating elements to drive the heating elements in a time division manner with the divided block as a unit;

a drive control logic which controls a drive signal to be given to the driver;
and

a hysteresis circuit which is provided in an input portion of the drive control logic and makes an input data threshold value different at rising and falling.

3. (Previously Presented) The ink jet head substrate according to claim 1, wherein the logic circuit comprises CMOS inverters of even number stages connected serially.

4. (Previously Presented) The ink jet head substrate according to claim 1, wherein a shift register for outputting image data, which is inputted serially, in parallel, and a latch circuit temporarily storing data outputted from the shift register are further provided on the substrate,

wherein the heating elements, the driver, the input line, the block selection unit, the shift register, and the latch circuit are formed on the substrate, and

wherein the logic circuit has a form of an inverter circuit which is formed by a film forming process identical with that for a drive control logic system including the shift register and the latch circuit.

5. (Previously Presented) The ink jet head substrate according to claim 4, wherein the inverter circuit is a CMOS inverter circuit.

6. (Previously Presented) An ink jet head comprising:

the ink jet head substrate according to claim 1; and
a member which is combined with the ink jet head substrate and forms
liquid paths relating to the heating elements and ink discharge ports forming one end of the
liquid paths.

7. (Previously Presented) An ink jet print apparatus comprising:
the ink jet head according to claim 6; and
means for conveying a print medium relatively to the ink jet head.

8. (Previously Presented) The ink jet print apparatus according to claim 7,
further comprising a carriage which detachably supports the ink jet head and causes the ink
jet head to scan the print medium.